Tom Foster, Chairman
RTCA SC-186 Committee,
WG-6 (ADS-B MASPS)
Rockwell Collins address xxx

August xx, 2001

Dave Nakamura
RTCA SC-181 Chairman
Boeing Air Traffic Management
20403 68th Ave S., MC 80-KA
Kent, WA 98032

Dear Dave,

The current ADS-B MASPS cite the GPS WAAS MOPS (RTCA DO-229) and certain GPS outputs, i.e. Horizontal Protection Level (HPL), Horizontal Figure of Merit (HFOM), and Vertical Figure of Merit (VFOM) as the basis for a "Navigation Uncertainty Category" (NUC) Code to represent data quality of ADS-B position reports. Our committee is currently developing revisions to the ADS-B MASPS (RTCA DO-242A) that would split the NUC criterion into three separate criteria for position report accuracy, containment integrity, and integrity level. We intend to cite and use the RNP MASPS (RTCA DO-236A) as the basis for reported position accuracy and integrity, i.e. to use Estimated Position Uncertainty (EPU) and Containment Radius (Rc), as the primary basis for ADS-B accuracy and integrity metrics in the revised ADS-B MASPS. (See the attached NIC/NAC white paper, which summarizes our proposed changes for DO-242A.)

In order to move this proposal forward, we need assurance that the accuracy and integrity parameters EPU and Rc will be output from RNP navigation systems and made available on an avionics bus whenever appropriate as an input source for ADS-B reporting. It is assumed that any navigation system that does not provide Rc will be assigned a default integrity level of 0, i.e. no known containment radius, and that any navigation system intended for ADS-B use can provide a bound on EPU consistent with the methods described in DO-236A.

It is anticipated that many ADS-B systems will use GPS sensors as the source of GPS reporting. Our proposal assumes that HPL and HFOM parameters will be adequate substitutes for Rc and EPU for the purpose of reporting position accuracy and containment integrity, and that a default integrity level of at least $1x10^{-5}$ per hour or operation can be assumed for DO-229x GPS systems. If these assumptions are in error, then we seek the advice of your committee as to how we can compute appropriate bounds on EPU and Rc given standard GPS outputs including HPL and HFOM.

Sincerely Yours,

Tom Foster,
SC-186 WG-6 Chairman